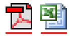
## Product Change Notification - GBNG-09LCDJ506

**Date:**
26 Mar 2020
**Product Category:**
8-bit Microcontrollers
**Affected CPNs:**



**Notification subject:**
CCB 4019 Final Notice: Qualification of MTAI as an additional assembly site for selected Atmel ATTINYxx products available in 14L (.150in) SOIC package.
**Notification text:**

**PCN Status:**
Final notification
**PCN Type:**
Manufacturing Change
**Microchip Parts Affected:**
Please open one of the icons found in the Affected CPNs section above.
NOTE: For your convenience Microchip includes identical files in two formats (.pdf and .xls).
**Description of Change:**
Qualification of MTAI as an additional assembly site for selected Atmel ATTINYxx products available in 14L (.150in) SOIC package.

**Pre Change:**
Assembled at ASCL using palladium coated copper with gold flash (CuPdAu) bond wire, ATB-125 or EN-4900G die attach and G700LA molding compound material.
**Post Change:**
Assembled at ASCL using palladium coated copper with gold flash (CuPdAu) bond wire, ATB-125 or EN-4900G die attach and G700LA molding compound material or assembled at MTAI using gold (Au) bond wire, 8390A die attach and G600V molding compound material.
**Pre and Post Change Summary:**

| | Pre Change | | Post Change | | |
|---|---|---|---|---|---|
| **Assembly Site** | ASE Group Chung-Li (ASCL) | | ASE Group Chung-Li (ASCL) | | Microchip Technology Thailand (HQ) (MTAI) |
| **Wire material** | CuPdAu | | CuPdAu | | Au |
| **Die attach material** | ATB-125 | EN-4900G | ATB-125 | EN-4900G | 8390A |
| **Molding compound material** | G700LA | | G700LA | | G600V |
| **Lead frame material** | A194 | | A194 | | A194 |
| **Impacts to Data Sheet:** None | | | | | |

**Change Impact:**
None

**Reason for Change:**
To improve on-time delivery performance by qualifying MTAI as an additional assembly site.
**Change Implementation Status:**
In Progress
**Estimated First Ship Date:**
April 26, 2020 (date code: 2018)

NOTE: Please be advised that after the estimated first ship date customers may receive pre and post change parts.

**Time Table Summary:**

| | January 2020 | | | | | | March 2020 | | | | | April 2020 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Workweek | 01 | 02 | 03 | 04 | 05 | | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| Initial PCN Issue Date | | X | | | | | | | | | | | | | |
| Qual Report Availability | | | | | | | | | | X | | | | | |
| Final PCN Issue Date | | | | | | | | | | X | | | | | |
| Estimated Implementation Date | | | | | | | | | | | | | | | X |

**Method to Identify Change:**
Traceability code
**Qualification Report:**
Please open the attachments included with this PCN labeled as PCN_#_Qual_Report.

**Revision History:**
**January 07, 2020:** Issued initial notification.
**March 26, 2020:** Issued final notification. Attached the qualification report and provided estimated first ship date to be on April 26, 2020.
The change described in this PCN does not alter Microchip's current regulatory compliance regarding the material content of the applicable products.
**Attachment(s):**
PCN_GBNG-09LCDJ506_Qual_Report.pdf

Please contact your local Microchip sales office with questions or concerns regarding this notification.

**Terms and Conditions:**

If you wish to receive Microchip PCNs via email please register for our PCN email service at our PCN home page select register then fill in the required fields. You will find instructions about registering for Microchips PCN email service in the PCN FAQ section.
If you wish to change your PCN profile, including opt out, please go to the PCN home page select login and sign into your myMicrochip account. Select a profile option from the left navigation bar and make the applicable selections.

Affected Catalog Part Numbers (CPN)

ATTINY1604-SSF
ATTINY804-SSF
ATTINY1604-SSN
ATTINY804-SSN
ATTINY804-SSNR
ATTINY1604-SSNR
ATTINY804-SSFR
ATTINY1604-SSFR
ATTINY204-SSF
ATTINY214-SSF
ATTINY404-SSF
ATTINY414-SSF
ATTINY204-SSN
ATTINY214-SSN
ATTINY404-SSN
ATTINY414-SSN
ATTINY214-SSNR
ATTINY414-SSNR
ATTINY404-SSNR
ATTINY204-SSNR
ATTINY414-SSFR
ATTINY404-SSFR
ATTINY214-SSFR
ATTINY204-SSFR
ATTINY1614-SSF
ATTINY1614-SSN
ATTINY1614-SSNR
ATTINY1614-SSFR
ATTINY814-SSF
ATTINY814-SSN
ATTINY814-SSNR
ATTINY814-SSFR

# QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

## PCN #: GBNG-09LCDJ506

**Date**
**March 16, 2020**

**Qualification of MTAI as an additional assembly site for selected Atmel ATTINYxx products available in 14L (.150in) SOIC package. This is a Q100 Grade 1, 2, 3 qualification.**

# Package Qualification Report

**Purpose: Qualification of MTAI as an additional assembly site for selected Atmel ATTINYxx products available in 14L (.150in) SOIC package. This is a Q100 Grade 1, 2, 3 qualification.**

| | | |
|---|---|---|
| **Misc.** | Assembly site | MTAI |
| | BD Number | BDM-002196 rev.C |
| | MP Code (MPC) | 59B15YD3XVA1 |
| | Part Number (CPN) | ATTINY1614-SSZT-VAO |
| | Qual ID No. | QTP4015 Rev. A |
| | CCB No | 4019 |
| **Lead-Frame** | Paddle size | 104x150 |
| | Material | A194 |
| | DAP Surface Prep | Bare Cu |
| | Treatment | Brown oxide treatment; Ag on leads |
| | Process | Stamped |
| | Lead-lock | Yes |
| | Part Number | 10101413 |
| | Lead Plating | Matte Tin |
| | Strip Size | 70 x 250mm |
| | Strip Density | 700 unit/strip |
| **Bond Wire** | Material | Au |
| **Die Attach** | Part Number | 8390A |
| | Conductive | Yes |
| **MC** | Part Number | G600V |
| **PKG** | PKG Type | SOIC |
| | Pin/Ball Count | 14 |
| | PKG width/size | 150 mil |

# Package Qualification Report

**Manufacturing Information:**

| Assembly Lot No. | Date Code |
|---|---|
| MTAI203102363.000 | 1944CDY |
| MTAI203102362.000 | 1944CDV |
| MTAI203100590.000 | 19448CK |

**Result** [X] Pass [ ] Fail [ ] ____________________

Q100 Grade 1, 2, 3 Qualification of 59B15 in 14L SOIC at MTAI Au wire Passed Moisture/ Reflow Sensitivity Classification Level 1 per IPC/JEDEC J-STD-020E standard and QUALIFIED AEC Q006 Grade 1. No delamination were observed on all the units.

# PACKAGE QUALIFICATION REPORT

| Test Number (Reference) | Test Condition | Standard/ Method | Qty. (Acc.) | Def/SS | Result | Remarks |
|---|---|---|---|---|---|---|
| **Precondition Prior Perform Reliability Tests**<br>**MSL-1** | **Electrical Test :** +25°C | JESD22-A113, | 693(0) | | | Good Devices |
| | **External Visual Inspection**<br>System: Luxo Lamp | JIP/ IPC/JEDEC J-STD-020E | 693(0) | 0/693 | Pass | |
| | **Bake** 150°C, 24 hrs<br>System: HERAEUS | | 693(0) | | | |
| | **Moisture Soak** 85°C/85%RH Moisture Soak 168hrs.<br>System: Climats Excal 5423-HE | | 693(0) | | | |
| | **Reflow**<br>3x Convection-Reflow 260°C max<br>System: Mancorp CR.5000F | | 693(0) | 0/693 | | |
| | **Electrical Test :** +25°C | | 693(0) | 0/693 | | |

| Test Number (Reference) | Test Condition | Standard/ Method | Qty. (Acc.) | Def/SS | Result | Remarks |
|---|---|---|---|---|---|---|
| **Temp Cycle** | **Stress Condition:** (Standard)<br>-65°C to +150°C, 500 Cycles<br>System: VOTSCH VT 7012 S2 | JESD22-A104 | 231(0) | | | Parts had been pre-conditioned at 260°C |
| | **Electrical Test:** +85°C , 105°C +125°C | | 231(0) | 0/231 | Pass | |
| | **Bond Strength:**<br>Wire Pull | | 15(0) | 0/15 | Pass | |
| | Bond Shear | | 3(0) | 0/3 | Pass | |

| Test Number (Reference) | Test Condition | Standard/ Method | Qty. (Acc.) | Def/SS | Result | Remarks |
|---|---|---|---|---|---|---|
| **UNBIASED-HAST** | **Stress Condition:** (Standard)<br>+110°C/85%RH, 264 hrs.<br>System: HIRAYAMA HASTEST PC-422R8 | JESD22-A118 | 231(0) | | | Parts had been pre-conditioned at 260°C |
| | **Electrical Test:** +25°C | | 231(0) | 0/231 | Pass | |
| **BIASED-HAST** | **Stress Condition:** (Standard)<br>+110°C/85%RH, 264 hrs.<br>System: HIRAYAMA HASTEST PC-422R8 | JESD22-A110 | 231(0) | | | Parts had been pre-conditioned at 260°C |
| | **Electrical Test:** +25°C,+85°C,+105°C +125°C | | 231(0) | 0/231 | Pass | |

# PACKAGE QUALIFICATION REPORT

| Test Number (Reference) | Test Condition | Standard/ Method | Qty. (Acc.) | Def/SS. | Result | Remarks |
|---|---|---|---|---|---|---|
| **High Temperature Storage Life** | **Stress Condition:**<br>Bake 175°C, 500 hrs<br>System: HERAEUS<br><br>**Electrical Test :** +25°C ,+85°C , +105°C , +125°C | JESD22-A103 | 2310)<br><br>231(0) | <br><br>0/231 | <br><br>Pass | |
| **Solderability**<br><br>**Temp 245°C** | **Bake:** Temp 155°C,4Hrs<br>System:Oven<br>Solder Bath: Temp.245°C | J-STD-002 | 22 (0) | 0/22 | Pass | Performed at MPHIL |
| **Physical**<br><br>**Dimensions** | Physical Dimension,<br><br>10 units from 3 lot | JESD22-B100/B108 | 30(0) | | | |
| **Bond Strength**<br><br>**Data Assembly** | Wire Pull | M2011.8<br><br>MIL-STD-883 | 30(0) Wires | 0/30 | Pass | |
| **Bond Strength**<br><br>**Data Assembly** | Bond Shear | M2011.8<br><br>MIL-STD-883 | 30(0) bonds | 0/30 | Pass | |